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- of at least about 10:1 by weight, when said quaternary carbon atoms are present; and
b) from about 0.01% to about 99.99% by weight of at least one isomer of the linear analog of
said alkylaryl (a).

REMARKS

Claims 10, 12-17, 19-27, 29-34, 36-42 are pending. Support for these amendments is found in the specification and claims as originally filed. These amendments are being entered to bring the Claims into conformance with, interalia, 37 CFR § 1.75; no new matter is added.

Rejections Under 35 U.S.C. § 103(a)

Claims 10-42 are rejected by the Examiner under 35 U.S.C. § 103(a) as being unpatentable over Pelrine (US 4,990,718) or Gudelis (US 3,351,654) or Page et al. (US 4,870,038) or Blaine et al. (US 5,026,933). Applicants respectfully disagree with the finding of obviousness.

Pelrine teaches a process for the preparation of synthetic oils useful as lubricants, lubricant additives and insulating fluids. Applicants submit that Pelrine is not in the field of the present application (i.e., a source for making surfactants) nor is it reasonably pertinent to the particular problem with which Applicant are concerned (i.e., fabric laundering). In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned. *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992); MPEP 2141.01(a).

However, even if Pelrine were to be considered analogous art, Pelrine still does not teach or suggest the claimed invention of the present application. The claimed invention of the present invention describes an alkylaryl composition comprising at least two isomers of the alkylaryl of the present invention and wherein of the two or more isomers of the alkyl aryl are present, two or more positional isomers with respect to the positions of attachment of R', R'', and A to L is required. The claimed invention of the present application allows for a source to make alkylarylsulfonate surfactants. The mixture allows for a standard conversion to a surfactant having numerous advantages and delivers superior cold-water solubility, superior hardness tolerance and excellent detergency, especially under low-temperature was

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conditions. The multi-functions arise out of the mixtures of isomers of the alkylaryl and the mixture of positional isomers of the alkylaryl.

By contrast, Pelrine is silent with respect to such mixtures of alkylaryl isomers and positional isomers thereof as a suitable source for making alkylarylsulfonate surfactants. Additionally, Pelrine is silent with respect to the advantages of such mixtures. One skilled in the art would not expect the mixture of alkylaryl isomers of the claimed invention to have similar properties as taught in Pelrine, since if similar properties were present, the mixture of isomers would be unnecessary to achieve the same results. Therefore, one skilled in the art would not be motivated to modify Pelrine to arrive at the claimed invention of the present application. Nor would one skilled in the art have a reasonable expectation of success in modifying Pelrine. As stated above, Pelrine teaches a process for the preparation of synthetic oils useful as lubricants, lubricant additives and insulating fluids. One skilled in the art would not reasonably expect to succeed in producing an alkylaryl composition suitable as a source for making alkylarylsulfonate surfactants in view of the teachings of Pelrine.

Gudelis discloses a process of preparing biodegradable detergents by dimerizing an olefin having C₅-C₁₆ with a silica-alumina catalyst. Gudelis further discloses that the subject process comprises "...contacting a hydrocarbon feed consisting essentially of straight-chain alpha-mono-olefin hydrocarbons of 5 to 10 carbon atoms..." (see Claim 1; Emphasis added). Applicants submit that Gudelis fails to teach the claimed invention because the subject process of Gudelis fails to yield the alkylaryl composition of the claimed invention of the present application, comprising at least two isomers alkylaryl compounds and positional isomers thereof. One skilled in the art would not expect the mixture of alkylaryl isomers of the claimed invention to have similar properties as taught in Gudelis, since if similar properties were present, the mixture of isomers would be unnecessary to achieve the same results. Further, Gudelis fails to teach the claimed composition because the subject process of Gudelis fails to disclose a skeletally isomerized lightly branched olefin. Thus, Applicants submit that Claims 10, 12-17, 19-27, 29-34, 36-42 are not rendered obvious over Gudelis.

Page discloses an olefin oligomerization with zeolite catalyst wherein the olefin oligomers may be used as alkylating agents to prepare alkylbenzene sulfonates. Page further discloses that said oligomerization produces substantially linear hydrocarbons. Applicant submits that Page fails to teach the claimed invention because the subject process of Page fails to disclose a skeletally isomerized lightly branched olefin. Moreover, Page fails to teach the claimed invention because the subject process of Page fails to produce an alkylaryl

composition containing at least two isomers of the formula depicted in pending Claims 10, 17, 26, or 34 and positional isomers thereof. One skilled in the art would not expect the mixture of alkylaryl isomers of the claimed invention to have similar properties as taught in Page, since if similar properties were present, the mixture of isomers would be unnecessary to achieve the same results. Accordingly, Applicants submit that Claims 10, 12-17, 19-27, 29-34, 36-42 are not rendered obvious over Page.

Blain et al discloses a process for producing a linear hydrocarbon by oligomerization with zeolite catalyst wherein olefin oligomers may be used as alkylating agents. Applicants submit that Blain fails to teach the claimed invention because the subject process of Blain fails to produce an alkylaryl composition comprising two isomers of the formula depicted in pending Claims 10, 17, 26, or 34 and positional isomers thereof. One skilled in the art would not expect the mixture of alkylaryl isomers of the claimed invention to have similar properties as taught in Blain, since if similar properties were present, the mixture of isomers would be unnecessary to achieve the same results. Further, Blain fails to teach the claimed composition because the subject process of Blain fails to disclose a skeletally isomerized lightly branched olefin. Accordingly, Applicants submit that Claims 10, 12-17, 19-27, 29-34, 36-42 are not rendered obvious over Blain.

Applicants submit that it would not have been obvious to a person of ordinary skill in the art to combine the above-listed references to arrive at Applicants' claimed invention. Each of the references fails to teach key aspects of the claimed invention. Further, the combination of the above-listed references would fail to produce the improved alkylaryl composition of the claimed invention, as claimed in Claims 10, 12-17, 19-27, 29-34, 36-42. Accordingly, reconsideration and withdrawal of the rejection to Claims 10, 12-17, 19-27, 29-34, 36-42 under 35 USC § 103(a) is respectfully requested.

CONCLUSION

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

Applicants have made an earnest effort to distinguish the claimed invention from the applied references. In light of the amendments to the claims and the above remarks, it is requested that the Examiner reconsider and withdraw the rejection under 35 U.S.C. § 103(a).



Early and favorable action in the case is respectfully requested. If, prior to allowance, any outstanding issues exist, Applicants' attorney would welcome the opportunity to resolve such issues via a phone interview.

Respectfully submitted,
Kevin L. Kott, et al.

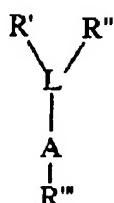

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

10. (amended) An alkylaryl composition suitable as a source for making alkylarylsulfonate surfactants, wherein said composition comprises at least two isomers of an alkylaryl of the formula:



wherein:

L is an acyclic aliphatic hydrocarbyl of from 6 to 18 carbon atoms in total;

R' is selected from H and C₁ to C₃ alkyl;

R" is selected from H and C₁ to C₃ alkyl;

both R' and R" are nonterminally attached to L and at least one of R' and R" is C₁ to C₃ alkyl;

R''' is selected from H and C₁ to C₃ alkyl; and

A is aryl

wherein:

said alkylaryl composition comprises two or more isomers with respect to positions of attachment of R', R" and A to L;

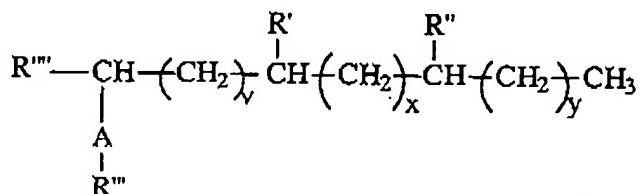
in at least about 60% of said alkylaryl composition, A is attached to L in the position which is selected from positions alpha- and beta- to either of the two terminal carbon atoms thereof; and

wherein further said alkylaryl composition has ~~at least one of the following properties:~~

~~said alkylaryl composition has a ratio of nonquaternary to quaternary carbon atoms in L of at least about 10:1 by weight, when said quaternary carbon atoms are present; and~~

~~there is no more than 40% by weight loss as measured by Hardness Tolerance Test.~~

17. (amended) An alkylaryl composition suitable as a source for making alkylarylsulfonate surfactants, wherein said composition comprises at least two isomers, counted exclusive of ortho-, meta-, para-, and stereoisomers, of an alkylaryl of the formula:



wherein A is aryl; R''' is selected from H and C₁ to C₃ alkyl; R' is selected from hydrogen and C₁ to C₃ alkyl; R'' is selected from hydrogen and C₁ to C₃ alkyl; and R''' is selected from hydrogen and C₁ to C₄ alkyl; v is an integer from 0 to 10; x is an integer from 0 to 10; y is an integer from 0 to 10;

wherein:

the total number of carbon atoms attached to A is less than about 20;

said alkylaryl composition comprises two or more isomers with respect to positions of attachment of R', R'' and A to the moiety

R'''-C(-)H(CH₂)_vC(-)H(CH₂)_xC(-)H(CH₂)_y-CH₃ of this formula;

at least one of R' and R'' is C₁ to C₃ alkyl; when R''' is C₁, the sum of v + x + y is at least 1; and when R''' is H, the sum of v + x + y is at least 2; and

in at least about 60% of said alkylaryl composition, A is attached to the moiety

$R'''-C(-)H(CH_2)_vC(-)H(CH_2)_xC(-)H(CH_2)_y-CH_3$ in the position which is selected from positions alpha- and beta- to either of the two terminal carbon atoms therof; wherein further said alkylaryl composition has at least one of the following properties:

~~said alkylaryl composition has a ratio of nonquaternary to quaternary carbon atoms in the moiety~~

$R'''-C(-)H(CH_2)_vC(-)H(CH_2)_xC(-)H(CH_2)_y-CH_3$ of at least about 10:1 by weight, when said quaternary carbon atoms are present; and
~~there is no more than 40% by weight loss as measured by Hardness Tolerance Test.~~

26. (amended) An alkylaryl composition suitable as a source for making alkylarylsulfonate surfactants, wherein said composition comprises:

a) from about 0.01% to about 99.99% by weight of an alkylaryl composition comprising at least two isomers of an alkylaryl of the formula:



wherein:

L is an acyclic aliphatic hydrocarbyl of from 6 to 18 carbon atoms in total;

R' is selected from H and C₁ to C₃ alkyl;

R'' is selected from H and C₁ to C₃ alkyl;

both R' and R'' are nonterminally attached to L and at least one of R' and R'' is C₁ to C₃ alkyl;

R''' is selected from H and C₁ to C₃ alkyl; and

A is aryl

wherein:

said alkylaryl composition comprises two or more isomers with respect to positions of attachment of R', R" and A to L;

in at least about 60% of said alkylaryl composition, A is attached to L in the position which is selected from positions alpha- and beta- to either of the two terminal carbon atoms thereof; and

wherein further said alkylaryl composition has ~~at least one of the following properties:~~

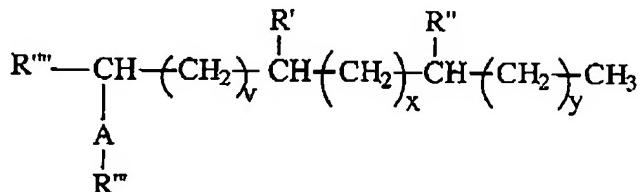
~~said alkylaryl composition has a ratio of nonquaternary to quaternary carbon atoms in L of at least about 10:1 by weight, when said quaternary carbon atoms are present; and~~

~~there is no more than 40% by weight loss as measured by Hardness Tolerance Test; and~~

b) from about 0.01% to about 99.99% by weight of at least one isomer of the linear analog of said alkylaryl (a).

34. (amended) An alkylaryl composition suitable as a source for making alkylarylsulfonate surfactants, wherein said composition comprises:

a) from about 0.01% to about 99.99% by weight of an alkylaryl composition comprising at least two isomers, counted exclusive of ortho-, meta-, para- and stereoisomers, of an alkylaryl of the formula:



wherein A is aryl; R''' is selected from H and C₁ to C₃ alkyl; R' is selected from hydrogen and C₁ to C₃ alkyl; R'' is selected from hydrogen and C₁ to C₃ alkyl; and R''' is selected

from hydrogen and C₁ to C₄ alkyl; v is an integer from 0 to 10; x is an integer from 0 to 10; y is an integer from 0 to 10;

wherein:

the total number of carbon atoms attached to A is less than about 20;

said alkylaryl composition comprises two or more isomers with respect to positions of attachment of R', R" and A to the moiety

R'''-C(-)H(CH₂)_vC(-)H(CH₂)_xC(-)H(CH₂)_y-CH₃ of this formula;

at least one of R' and R" is C₁ to C₃ alkyl; when R''' is C₁, the sum of v + x + y is at least 1; and when R''' is H, the sum of v + x + y is at least 2; and

in at least about 60% of said alkylaryl composition, A is attached to the moiety

R'''-C(-)H(CH₂)_vC(-)H(CH₂)_xC(-)H(CH₂)_y-CH₃ in the position which is selected from positions alpha- and beta- to either of the two terminal carbon atoms thereof;

wherein further said alkylaryl composition has ~~at least one of the following properties:~~

~~said alkylaryl composition has a ratio of nonquaternary to quaternary carbon atoms in the moiety~~

~~R'''-C(-)H(CH₂)_vC(-)H(CH₂)_xC(-)H(CH₂)_y-CH₃ of at least about 10:1 by weight,~~

~~when said quaternary carbon atoms are present; and~~

~~there is no more than 40% by weight loss as measured by Hardness Tolerance Test;~~
~~and~~

b) from about 0.01% to about 99.99% by weight of at least one isomer of the linear analog of said alkylaryl (a).